

CLAIMS

What is claimed is:

1 *Sub* 1. An isolated antibody that specifically binds to an epitope specifically
2 *BI* bound by an antibody expressed by a clone selected from the group consisting of clone S25,
3 clone C25, clone C39, clone 1C6, and clone 1F3, wherein said antibody binds to and
4 neutralizes botulinum neurotoxin type A (BoNT/A).

1 2. The antibody of claim 1, wherein said clone is S25.

1 3. The antibody of claim 1, wherein said clone is C25 or C39.

1 4. The antibody of claim 1, wherein said clone is 1C6.

1 5. The antibody of claim 1, wherein said clone is 1F3.

1 6. The antibody of claim 1, wherein said antibody comprises at least two
2 variable heavy (V_H) complementarity determining regions (CDRs) listed in Table 4.

1 7. The antibody of claim 6, wherein said antibody comprises at three
2 variable heavy (V_H) complementarity determining regions (CDRs) listed in Table 4.

1 8. The antibody of claim 1, wherein said antibody further comprises a
2 variable light (V_L) complementarity determining region (CDR) listed in Table 4.

1 9. The antibody of claim 8, wherein said antibody comprises at least two
2 variable light (V_L) complementarity determining regions (CDRs) listed in Table 4.

1 10. The antibody of claim 9, wherein said antibody comprises three
2 variable light (V_L) complementarity determining regions (CDRs) listed in Table 4.

1 11. The antibody of claim 1, wherein said antibody is an antibody
2 expressed by a clone selected from the group consisting of a clone listed in Table 4.

1 12. The antibody of claim 1, wherein said antibody is a single chain Fv
2 (scFv).

1 13. The antibody of claim 1, wherein said antibody is a Fab.

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- 1 14. The antibody of claim 1, wherein said antibody is a (Fab')₂.
- 1 15. The antibody of claim 1, wherein said antibody is a (scFv')₂.
- 1 16. The antibody of claim 15, wherein said antibody is a fusion protein of
- 2 two scFv fragments.

1 17. The antibody of claim 1, wherein said antibody comprises a framework

2 region listed in Table 4.

1 18. The antibody of claim 17, wherein said framework is a variable heavy

2 (V_H) framework region listed in Table 4.

1 19. The antibody of claim 17, wherein said framework is a variable light

2 (V_L) framework region listed in Table 4.

1 20. The antibody of claim 18, wherein said antibody comprises at least two

2 variable heavy (V_H) framework regions listed in Table 4.

1 21. The antibody of claim 19, wherein said antibody comprises at least two

2 variable light (V_L) framework regions listed in Table 4.

1 22. The antibody of claim 18, wherein said antibody comprises a variable

2 heavy (V_H) region listed in Table 4.

1 23. The antibody of claim 19, wherein said antibody comprises a variable

2 light (V_L) region listed in Table 4.

1 24. An isolated anti-botulinum neurotoxin type A (anti-BoNT/A) antibody,

2 said antibody comprising a variable heavy (V_H) complementarity determining region (CDR)

3 listed in Table 4 and wherein said antibody specifically binds to and neutralizes a botulinum

4 neurotoxin type A.

1 25. The antibody of claim 24, wherein said antibody comprises at least two

2 variable heavy (V_H) complementarity determining regions (CDRs) listed in Table 4.

1 26. The antibody of claim 25, wherein said antibody comprises at three

2 variable heavy (V_H) complementarity determining regions (CDRs) listed in Table 4.

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1 27. The antibody of claim 24, wherein said antibody further comprises a
2 variable light (V_L) complementarity determining region (CDR) listed in Table 4.

1 28. The antibody of claim 27, wherein said antibody comprises at least two
2 variable light (V_L) complementarity determining regions (CDRs) listed in Table 4.

1 29. The antibody of claim 28, wherein said antibody comprises three
2 variable light (V_L) complementarity determining regions (CDRs) listed in Table 4.

1 30. The antibody of claim 24, wherein said antibody is an antibody
2 expressed by a clone selected from the group consisting of a clone listed in Table 4.

1 31. The antibody of claim 24, wherein said antibody is a single chain Fv
2 (scFv).

1 32. The antibody of claim 24, wherein said antibody is a Fab.

1 33. The antibody of claim 24, wherein said antibody is a (Fab')₂.

1 34. The antibody of claim 24, wherein said antibody is a (scFv')₂.

1 35. The antibody of claim 34, wherein said antibody is a fusion protein of
2 two scFv fragments.

1 36. The antibody of claim 24, wherein said antibody comprises a
2 framework region listed in Table 4.

1 37. The antibody of claim 36, wherein said framework is a variable heavy
2 (V_H) frame work region listed in Table 4.

1 38. The antibody of claim 36, wherein said framework is a variable light
2 (V_L) frame work region listed in Table 4.

1 39. The antibody of claim 37, wherein said antibody comprises at least two
2 variable heavy (V_H) framework regions listed in Table 4.

1 40. The antibody of claim 38, wherein said antibody comprises at least two
2 variable light (V_L) framework regions listed in Table 4.

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1 50. The method of claim 49, wherein said antibody comprises three
2 variable light (V_L) complementarity determining regions (CDRs) listed in Table 4.

1 51. The method of claim 44, wherein said antibody is an antibody
2 expressed by a clone listed in Table 4.

1 52. The method of claim 44, wherein said antibody is a single chain Fv
2 (scFv).

1 53. The method of claim 44, wherein said antibody is a Fab.

1 54. The method of claim 44, wherein said antibody is a (Fab')₂.

1 55. The method of claim 44, wherein said antibody is a (scFv')₂.

1 56. The method of claim 55, wherein said antibody is a fusion protein of
2 two scFv fragments.

1 57. The method of claim 44, wherein said antibody comprises a framework
2 region listed in Table 4.

1 58. The method of claim 57, wherein said framework is a variable heavy
2 (V_H) frame work region listed in Table 4.

1 59. The method of claim 57, wherein said framework is a variable light
2 (V_L) frame work region listed in Table 4.

1 60. The method of claim 58, wherein said antibody comprises at least two
2 variable heavy (V_H) framework regions listed in Table 4.

1 61. The method of claim 59, wherein said antibody comprises at least two
2 variable light (V_L) framework regions listed in Table 4.

1 62. The method of claim 58, wherein said antibody comprises a variable
2 heavy (V_H) region listed in Table 4.

1 63. The method of claim 59, wherein said antibody comprises a variable
2 light (V_L) region listed in Table 4.

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1 64. A polypeptide comprising botulinum neurotoxin type A (BoNT/A)
2 neutralizing epitope, said neutralizing epitope comprising an epitope specifically bound by an
3 antibody expressed by a clone selected from the group consisting of clone S25, clone C25,
4 clone C39, clone 1C6, and clone 1F3, wherein said polypeptide is not a full-length botulinum
5 neurotoxin H_c fragment.

1 65. The polypeptide of claim 64, wherein said polypeptide is a fragment of
2 BoNT/A H_c having a length of at least 8 amino acids.

1 66. The polypeptide of claim 64, wherein said clone is S25.

1 67. The polypeptide of claim 64, wherein said clone is C25 or C39.

1 68. The polypeptide of claim 64, wherein said clone is 1C6.

1 69. The polypeptide of claim 64, wherein said clone is 1F3.

1 70. A method of making a botulinum neurotoxin type A antibody (anti-
2 BoNT/A) that neutralizes BoNT/A, said method comprising:
3 contacting a plurality of antibodies with a an epitope specifically
4 bound by an antibody expressed by a clone selected from the group consisting of clone S25,
5 clone C25, clone C39, clone 1C6, and clone 1F3; and
6 isolating an antibody that specifically binds to said epitope.

1 71. The method of claim 70, wherein said clone is S25.

1 72. The method of claim 70, wherein said clone is C25 or C39.

1 73. The method of claim 70, wherein said clone is 1C6.

1 74. The method of claim 70, wherein said clone is 1F3.

1 75. The method of claim 70, wherein said plurality of antibodies are
2 antibodies displayed on a surface protein of a phage.

1 76. The method of claim 70, wherein said plurality of antibodies are
2 antibodies in serum from a mammal.

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1 77. The method of claim 70, wherein said plurality of antibodies are
2 antibodies expressed by hybridomas.

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